

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 8-12 were pending in this application. In this Amendment, Applicants have canceled claim 9, amended claims 8 and 10, and added new claims 13-16. Accordingly, claims 8 and 10-16 will be pending herein upon entry of this Amendment. For the reasons stated below, Applicant respectfully submits that all claims pending in this application are in condition for allowance.

In the Office Action mailed December 20, 2005, the Examiner rejected claim 10 under 35 U.S.C. §112, ¶ 2 as being indefinite. The Examiner also rejected claims 8-10 and 12 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,030,914 to Matsui ("Matsui"). The Examiner also objected to claim 11 as being dependent upon a rejected base claim, but allowable if rewritten in independent form.

Regarding the § 102(e) rejection, Applicants have amended claim 8 to set forth a process for making a catalytic converter for cleaning exhaust gas, comprising the steps of: performing preliminary baking of a zirconium oxide at a temperature of not lower than 700°C for causing a decrease in specific surface area of the zirconium oxide, and coating the preliminarily baked zirconium oxide on a heat-resistant support together with at least one kind of catalytically active substance. In spite of such high-temperature preliminary baking, the preliminarily baked zirconium oxide still maintains a specific surface area of no less than 40m²/g.

The support for the first underlined additional limitation is found in former claim 9, which has been canceled. The support for the second underlined additional limitation can be found, for example, at lines 9-17, page 3 of the specification where the pre-aging specific area I of the zirconium oxide (which is the initial surface area exhibited by the zirconium oxide obtained by preliminary baking) is defined as $I \geq 40\text{m}^2/\text{g}$.

A significant feature of the present invention resides in preliminary high-temperature baking (at a temperature of not lower than 700°C) of zirconium oxide, which is later caused to support at least one kind of catalytically active substance. Such preliminary baking causes a decrease in the specific surface area of zirconium oxide due to sintering of the oxide particles but reduces a subsequent decrease in the specific surface area of zirconium oxide upon aging, which is caused by actual running of the catalytic converter or by simulation of actual running (*i.e.*, simulated high temperature heating) for testing.

According to the present invention, a catalytically active substance is made to be supported on zirconium oxide that has already experienced a decrease of its specific surface area due to the preliminary high-temperature baking. After the preliminary baking but before supporting the catalytically active substance (and before aging), the zirconium oxide has a specific surface area of no less than 40m²/g. Since subsequent aging does not cause much additional decrease of the specific surface area (*i.e.*, additional sintering), the catalytically active substance is prevented from being buried attendant with the additional sintering, thereby retaining its initial activity over a long time. Technical advantages of the present invention are clearly shown in Tables 2 and 3 (pages 13 and 14) where zirconium oxide having undergone

preliminary baking at 700°C, 800°C, 900°C, and 1000°C, respectively, are equally shown to have a pre-aging specific surface area of no less than 40m²/g and suffer a less decrease of the specific surface area upon subsequent aging than comparative examples in which zirconium oxide having undergone preliminary baking at 400°C.

Matsui appears to teach the opposite of what is claimed in the present invention. More specifically, Matsui teaches a highest preliminary baking temperature of 650°C for zirconia (column 6, lines 20-26) and a preliminary baking temperature range of 300-700°C for Zr-Ce mixed oxide (column 6, lines 64-66). More importantly, Matsui clearly teaches that if the baking temperature exceeds 700°C, the specific surface area of the Zr-Ce oxide powder tends to be smaller than 40m²/g, so that the baking temperature should preferably be in the range of 350-600°C (column 7, lines 2-8).

In this way, Matsui teaches that the preliminary baking temperature for Zr-Ce oxide should be no higher than 700°C for avoiding an initial decrease of the Zr-Ce oxide powder. Though Matsui may overlap the present invention at one point (*i.e.*, at a temperature of 700°C), such an overlap is only accidental in view of the basic disclosure of Matsui. Note that the preferable range of the preliminary baking temperature is 350-600°C, and the highest baking temperature adopted in Examples 1-4 of Matsui is 500°C.

Claim 1 has been amended to avoid even the above-noted accidental overlap by setting forth that the zirconium oxide has a specific surface area of no less than 40m²/g in spite of preliminary baking at a temperature of not lower than 700°C. In this regard, the Examiner's attention should be drawn to Comparative Examples 1 and 2 of Matsui (see column 7, lines 46-

57) where zirconia powder having undergone preliminary baking at 700°C is shown to have a specific surface area of less than 40m²/g.

For the above reasons, Applicants respectfully submit that amended claim 8 is patentable over the prior art of record. In addition, Applicants respectfully submit that claims 10-12 are also patentable due at least to their dependence on allowable base claim.

Regarding the §112 rejection of claim 10, Applicants have amended claim 10 to correct the antecedent basis. Applicants therefore respectfully submit that amended claim 10 complies with §112.

In the Office Action, the Examiner also indicated that claim 11 would be allowable if rewritten in independent form including all of the limitations of its base claim and any intervening claims. Applicants acknowledge with thanks this indication of allowable subject matter. Accordingly, Applicants have added new claims 13-16. New independent claim 13 recites all of the limitations of allowable original claim 11 and its base claim, original claim 8. New claims 14, 15, and 16 recite the subject matter of original claim 9, amended claim 10, and original claim 12, respectively. Applicants therefore respectfully submit that new claims 13-16 are in condition for allowance.

In view of the foregoing all of the claims in this case are believed to be in condition for allowance. Should the Examiner have any questions or determine that any further action is desirable to place this application in even better condition for issue, the Examiner is encouraged to telephone Applicants' undersigned representative at the number listed below.

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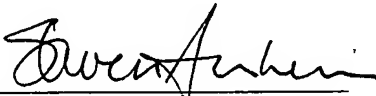
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